

R E M A R K S

This is in response to the Office Action that was mailed on August 26, 2003. Independent claim 1 is amended to more clearly define the silica filler feature of the present compositions. The amendments to claim 1 are based upon disclosure in lines 14-21 on page 5 (vinyl group content of the silica filler) and upon disclosure in lines 3-14 on page 7 (hydrophobization of the silica filler). No new matter is introduced. Entry of this Amendment in order to place the application into condition for allowance, or into better condition for appeal, is respectfully solicited. With this Amendment, claims 1-7 are in the application.

Applicants express their appreciation to Examiner Hu for the courtesies extended to their representative in the course of a telephonic interview on 24 November 2003. During the course of the interview, Examiner Hu indicated that he recognized that Applicants' compositions are inventive, but that the claims in their previous form – because they made use of product-by-process language rather than setting forth structural features of the silica gel – did not adequately differentiate Applicants' novel compositions from the prior art. It is respectfully submitted that the claims as amended herein now clearly differentiate the present invention from the prior art of record.

THE INVENTION. The present invention provides a curable fluoropolyether base rubber composition that has improved properties. More specifically, by using a hydrophobized silica filler that has a specific surface area (at least 100 m²/g) **and that has a specified vinyl content (1 x 10⁻³ t 2 x 10⁻² mol/100 g)**, the present invention provides fluoropolyether rubber products that have improved compression set as well as heat resistance, chemical resistance, solvent resistance, water repellency, oil repellency, and

weather resistance. As taught in the specification, ***the treated silica must have a vinyl group content within the precise range of 1 x 10⁻³ to 2 x 10⁻² mol/100 g***, so that the silica can serve to improve composition set without detracting from mechanical properties. Silica with a vinyl content of less than 1 x 10⁻³ mol/100 g fails to achieve the desired compression-set-improving effect. Silica with a vinyl content of more than 2 x 10⁻² mol/100 g acts to lower strength and elongation, substantially detracting from the desired mechanical properties.

Claims 1-7 were rejected under 35 U.S.C. §103(a) as being unpatentable over US 5,837,774 (Tarumi) in view of US 5,591,797 (Barthel). The rejection is respectfully traversed.

The compositions of the present claims all comprise 10 to 40 parts by weight of a silica filler having a specific surface area of at least 100 m²/g, wherein hydroxyl groups bound to silicon atoms on silica surfaces in said silica filler are linked to CH₂=CH₂SiO- or vinyl groups so that said silica filler has a vinyl content of 1 x 10⁻³ to 2 x 10⁻² mol/100 g, which silica filler has been surface hydrophobized by replacing remaining hydroxyl groups with (CH₃)_nSiO-groups wherein n is an integer of 1 to 3. Nothing in the prior art of record teaches or suggests this type of silica filler.

Regarding the recited vinyl content of the silica filler – which is a crucial feature of the present invention – the Examiner alleges that in Barthel, “the amount of vinyl content is overlapping the claimed limitation by examiner’s calculation from example 2”. Office Action, paragraph bridging pages 4-5. The Examiner is respectfully requested to explain on the record how he calculated an allegedly overlapping silica filler vinyl content based upon Example 2 of the Barthel patent.

Conclusion

If the Examiner has any questions concerning this application, he is requested to contact Richard Gallagher, Reg. No. 28,781, at (703) 205-8008.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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